PSION TEKLOGIX
COPPERNIC
SAGEM

MORPHOCHECK TERMINAL

USERS GUIDE

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A00	21/12/07	M.ARNAUD	Initial Version
A01	16/01/08	M.ARNAUD	Add reference and correction
A02	25/01/08	M.ARNAUD	Add correction
A03	10/02/10	M. PIEPERS	Add WiFi and Bluetooth details
A04	12/02/10	M. PIEPERS	Add FCC warning

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

TABLE OF CONTENT

1. INTRODUCTION

1.1. About this Manual

This manual provides guidance on how to access and control the peripherals of the Sagem MorphoCheck terminal base on the WorkAboutPRO G2 device.

Chapter 1: Introduction
Provides an overview of this manual.

Chapter 3: Development tools
Describes the libraries available for .Net and C++ developers

Chapter 3: Interface board
Describes how the dual (contact-less and contact) reader and the fingerprint reader are connected to the WorkAboutPRO G2 device through the interface board.

Chapter 4: Scanner port
Describes how to use the MRZ reader and the Imager module on the WorkAboutPRO.

Chapter 5: Bluetooth radio and Psion Teklogix Mobile Device SDK
Management of Bluetooth radio

Chapter 6: WiFi radio and Psion Teklogix Mobile Device SDK
Management of WiFi radio

2. DEVELOPMENT TOOLS

2.1. WorkAboutPRO HDK .Net Wrapper

The WorkAboutPRO HDK is intended to support developers of third-party hardware for Psion Teklogix WorkAboutPRO Hand-Held Computer. On top of that, a library has been designed to wrap these low level functions for .Net developer.
In this chapter all the code sample are extracted from the .Net wrapper, but can be easily translated to C++, see the WorkAboutPRO HDK .Net Wrapper documentation for more information.

Everything you need to install and use the WorkaboutPro HDK .Net Wrapper can be downloaded on the Partner Database page of the Psion Teklogix website.

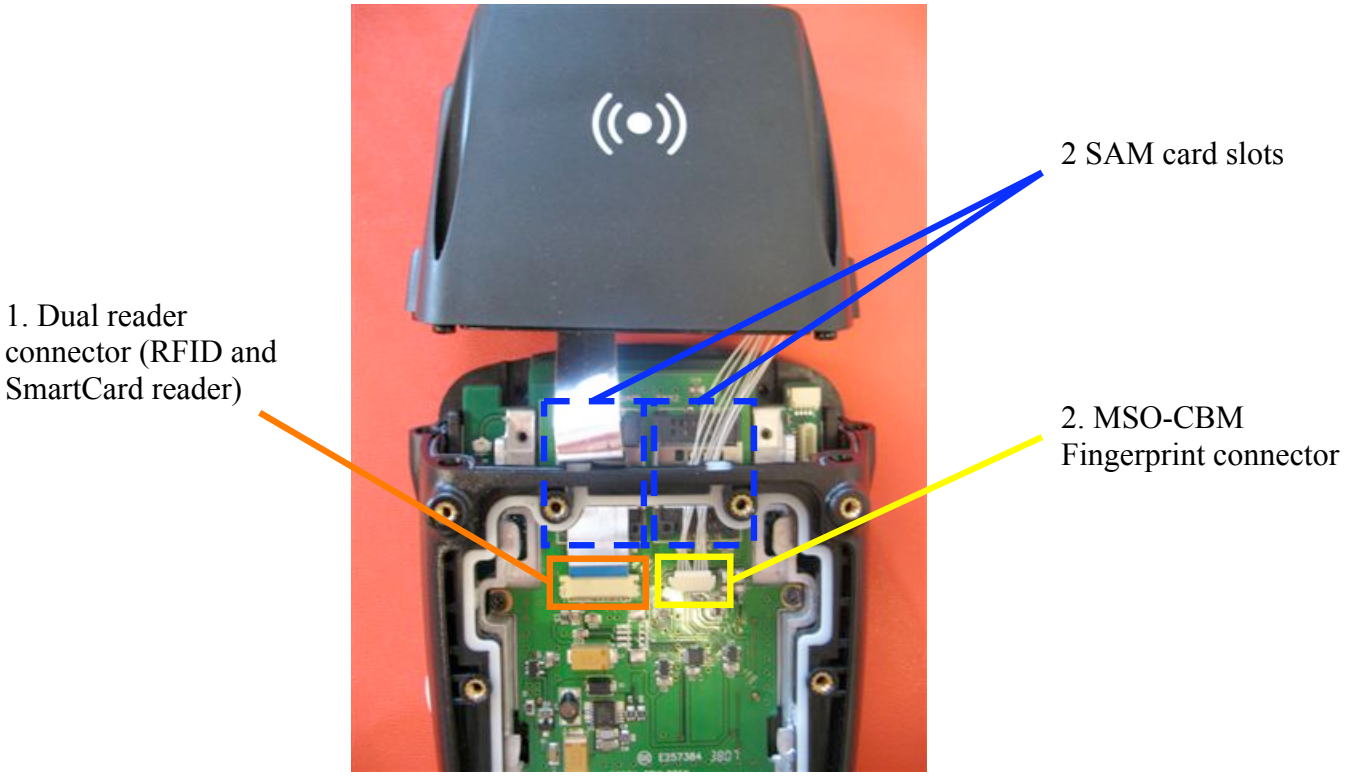
3. INTERFACE BOARD

3.1. Overview

The interface board is used to multiplex the serial communication towards the dual reader or the fingerprint reader. This board is connected on the WorkAboutPRO through the XMod connector.

Besides the 2 SAM sockets easily accessible on the top of the board, the interface board provides 2 connectors:

1. Dual Reader connector linked with the RFID and SmartCard reader (also called Dual Reader).
2. MSO-CBM connector linked with the Sagem MSO-CBM finger print reader.



3.2. Serial Communication Settings

To enable the serial interface on the WorkAboutPRO expansion slot, you need to set the registry key as follows:
HKLM\Drivers\PsionTeklogix\Expansion Slot\FFUART = dword:1
A warm reset of the terminal is mandatory after completion.

The communication to both readers is multiplexed through the port number COM1.

WorkAboutPRO .Net Wrapper sample code:

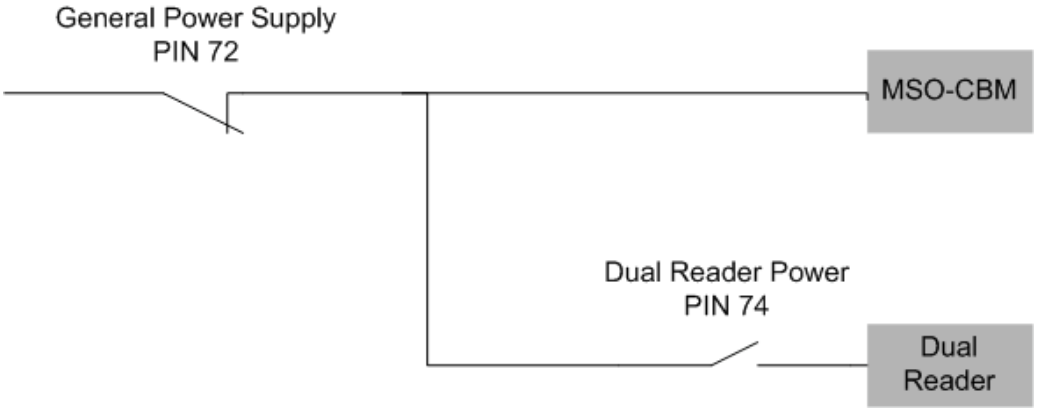
```
using PsionTeklogix.WorkAboutPro;

public class DeviceInterface
{
    public static void Init()
    {
        WorkAboutPro WAP = new WorkAboutPro();

        // Enable the serial port COM1 by setting the registry key
        // HKLM\Drivers\PsionTeklogix\Expansion Slot\FFUART = dword:1
        if( !WAP.COM1Active )
        {
            WAP.COM1Active = true;
            WAP.Reboot();
        }
    }
}
```

3.3. General Power Supply

General power supply is driven though the GPIO on **pin 72**.



PIN 72 State	General Power Supply
FALSE	ON
TRUE	OFF

IMPORTANT NOTICE : **Pin 70** must be set to false before switching the interface board power. Power overconsumption and a pin 70 damage may occur if not applied.

- **Power ON**

Set the output **pin 72** to false switches ON the interface board power.
The fingerprint reader is automatically power ON.
The dual reader is NOT automatically power ON: you need to set the **pin 74** to true to do that.

IMPORTANT NOTICE : **Pin 70** must be set to false before switching ON the interface board power. MSO-CBM dysfonction may occur if not applied.

WorkAboutPRO .Net Wrapper sample code:

```
using PsionTeklogix.WorkAboutPro;

public class DeviceInterface
{
    public static void PowerOn()
    {
        WorkAboutPro WAP = new WorkAboutPro();

        // Set pin 70 to false for proper use
        WAP.GPIO_SetPIN70State(false);
        // Set pin 72 to false to enable power
        WAP.GPIO_SetPIN72State(false);
    }
}
```

- **Power OFF**

Set the output **pin 72** to true, switches OFF the interface board power.

IMPORTANT NOTICE : **Pin 70** must be set to false before switching off the interface board power. Power overconsumption and a pin 70 damage may occur if not applied.

WorkAboutPRO .Net Wrapper sample code:

```
using PsionTeklogix.WorkAboutPro;

public class DeviceInterface
{
    public static void PowerOff()
    {
        WorkAboutPro WAP = new WorkAboutPro();
        // Set pin 70 to false for proper use
        WAP.GPIO_SetPIN70State(false);
        // Set pin 72 to false to disable power
        WAP.GPIO_SetPIN72State(true);
    }
}
```

3.4. Dual Reader

PIN 74 State	Dual Reader Power
TRUE	ON
FALSE	OFF

- **Power ON the Dual Reader**

Power on the interface board and set the output pin 74 to true switches on the dual reader.

WorkAboutPRO .Net Wrapper sample code:

```
using PsionTeklogix.WorkAboutPro;

public class DeviceInterface
{
    public static void SwitchOnDualReader()
    {
        WorkAboutPro WAP = new WorkAboutPro();

        // Enable general power supply
        // if it hasn't been done before
        // Set pin 70 to false for proper use
        WAP.GPIO_SetPIN70State(false);
        // Set pin 72 to false to enable power
        WAP.GPIO_SetPIN72State(false);

        // Set pin 74 to true to enable dual reader power
        WAP.GPIO_SetPIN74State(true);
    }
}
```

- **Power OFF the Dual Reader**

Set the output pin 74 to false switches off the dual reader.
Obviously if the interface board is powered off the dual reader is too switched off.

Using the WorkAboutPRO .Net Wrapper:

```
using PsionTeklogix.WorkAboutPro;

public class DeviceInterface
{
    public static void SwitchOffDualReader()
    {
        WorkAboutPro WAP = new WorkAboutPro();

        // Set pin 74 to false to disable dual reader power
        WAP.GPIO_SetPIN74State(false);

        // Disable general power supply
        // Set pin 70 to false for proper use
        WAP.GPIO_SetPIN70State(false);
        // Set pin 72 to false to disable power
        WAP.GPIO_SetPIN72State(true);

    }
}
```

- **Switch the Serial Communication to the Dual Reader**

PIN 70 State	Communication switch to
TRUE	MSO-CBM
FALSE	DUAL READER

Set the output pin 70 to false switches the serial communication to the dual reader.
The default state of the pin 70 is false, which means that by default the serial communication is link to the dual reader.
Using the WorkAboutPRO .Net Wrapper:

```
using PsionTeklogix.WorkAboutPro;

public class DeviceInterface
{
    public static void SwitchSerialCommToDualReader()
    {
        WorkAboutPro WAP = new WorkAboutPro();
        // Switch the serial communication to the Dual Reader
        WAP.GPIO_SetPIN70State(false);
    }
}
```

3.5. Fingerprint Reader

- **Power ON the Fingerprint reader**

This operation is done through the interface board power on. See the 2.4 General Power Supply section.

- **Power OFF the Fingerprint reader**

This operation is done through the interface board power off. See the 2.4 General Power Supply section.

- **Switch the serial communication to the Fingerprint reader**

PIN 70 State	Communication switch to
TRUE	MSO-CBM
FALSE	DUAL READER

Set the output pin 70 to true switches the serial communication to the MSO-CBM fingerprint reader.

WorkAboutPRO .Net Wrapper sample code:

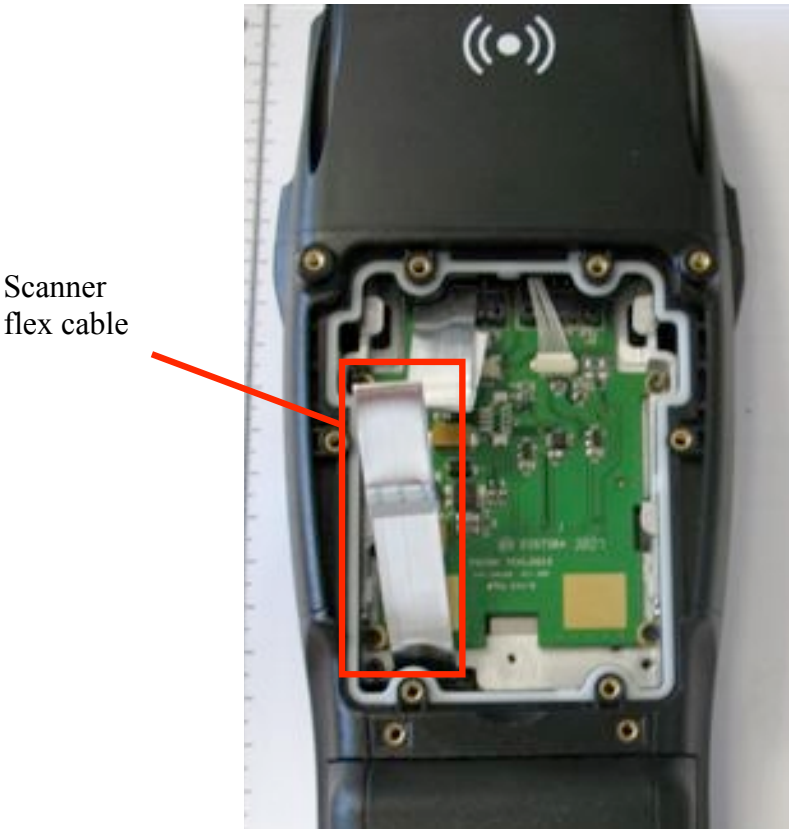
```
using PsionTeklogix.WorkAboutPro;

public class DeviceInterface
{
    public static void SwitchSerialCommToFingerprintReader()
    {
        WorkAboutPro WAP = new WorkAboutPro();
        // Switch the serial communication to the MSO-CBM
        WAP.GPIO_SetPIN70State(true);
    }
}
```

4. SCANNER CONNECTOR

4.1. Overview

The flex cable is used to connect the MRZ reader or the Imager module.



4.2. MRZ Reader

- **Serial Communication settings**

The MRZ reader is accessible through the scanner connector on the serial port COM3. The default communication settings are:
19200 bps
No parity
8 data bits
1 stop bit

- **Power ON the MRZ Reader**

Scanner EnablePower State	MRZ power
TRUE	ON
FALSE	OFF

The MRZ reader consums a lot of power, it is strongly recommended to manage its power supply manually. The function WorkAboutPro.ScannerPort_EnablePower(bool state) allows you to enable power by changing the parameter state to true.

IMPORTANT : It is IMPERATIVE to check your device configuration before using the MRZ reader, please proceed to the following recommandation to avoid any conflict:
• Check in the Start menu→Settings→System→About Device that the scanner is set to *None*. Otherwize go to the Boost menu by holding the red key, the blue key and the scanner key during 6 seconds. Then set the internal scanner to *None*.

WorkAboutPRO .Net Wrapper sample code:

```
using PsionTeklogix.WorkAboutPro;

public class DeviceInterface
{
    public static void PowerOnMRZReader()
    {
        WorkAboutPro WAP = new WorkAboutPro();
        // Enable power on scanner port
        WAP.ScannerPort_EnablePower(true);
    }
}
```

- **Power OFF the MRZ Reader**

Scanner EnablePower State	MRZ power
TRUE	ON
FALSE	OFF

The function WorkAboutPro.ScannerPort_EnablePower(bool state) with the parameter state set to false switches off he reader.

WorkAboutPRO .Net Wrapper sample code:

```
using PsionTeklogix.WorkAboutPro;

public class DeviceInterface
{
    public static void PowerOffMRZReader()
    {
        WorkAboutPro WAP = new WorkAboutPro();
        // Disable power on scanner port
        WAP.ScannerPort_EnablePower(false);
    }
}
```

4.3. Imager Reader

Before using your imager you need to configure your device internal scanner.
• Check in the Start menu→Settings→System→About Device that the scanner is set to *HHP IT 4080*. Otherwize go to the Boost menu by holding the red key, the blue key and the scanner key during several seconds. Then choose option 57in the scanner list.

5. Bluetooth radio

The Psion Teklogix Mobile Device Software Development Kit (PTX Mobile SDK) gives all required information to control the Bluetooth radio available on the Morphochek device.
The PTX SDK is available on Psion Teklogix' website: www.psionteklogix.com

6. WiFi 802.11b/g radio

The Psion Teklogix Mobile Device Software Development Kit (PTX Mobile SDK) gives all required information to control the WiFi 802.11b/g radio available on the Morphochek device.
The PTX SDK is available on Psion Teklogix' website: www.psionteklogix.com